

ABSTRACT OF THE DISCLOSURE

A voiced/unvoiced information estimation system uses input spectrum and synthetic spectrum to produce a voicing level spectrum. The estimation system uses a spectrum difference calculation unit to normalize a spectrum difference energy for each harmonic band in unit of harmonic band, and further uses a voicing level calculation unit to calculate a voicing level. The voicing level of each harmonic band has a continuous value between 1 and 0. The estimation system is effective in vector quantization of voiced/unvoiced information at a low bit rate. Because it is unnecessary to calculate a threshold for deciding a voiced/unvoiced information, a decision anomaly occurring due to threshold is eliminated, and the accuracy of a voicing level is improved. Furthermore, since a spectrum is represented by mixing a voiced element and a unvoiced element in a harmonic band, the estimation system improves the audio quality of a combined sound.